

Massachusetts. Mt. Desert, Maine." Boott's Massachusetts specimens were from Mystic Pond, Medford, "Ice Pond," Medford, and "Brookline branch R. R." The variety is apparently less common than typical *C. hormathodes*.

C. hormathodes Fernald, var. **Richii** Fernald. Frequent in central half of district, as far north as Ipswich, and south as Walpole. Named from specimens collected in Stoneham by W. P. Rich.

C. Hornschuchiana Hoppe, var. **laurentiana** Fernald & Wiegand. With *C. limosa*, western edge of Long Pond, Tewksbury (*B. D. Greene*, prior to 1836). Not since collected. See notes by M. L. Fernald, *RHODORA*, XIII, 243-248.

C. hystericina Muhl. Newburyport (*A. A. Eaton*, June 30, 1896); Beverly (*J. A. Lowell*, 1847); wet place, aqueduct near Benvenue St., Wellesley (*K. M. Wiegand*, July 6, 1908).

C. hystericina Muhl., var. **Cooleyi** Dewey. Fresh Pond, Cambridge (*Wm. Boott*, no date).

C. intumescens Rudge. Low ground, swamps and meadows; common throughout.

C. intumescens Rudge, var. **Fernaldii** Bailey. Wet woods, Arlington (*C. H. Knowlton*, June 22, 1907); wet place on bank of Charles River, Wellesley (*K. M. Wiegand*, Oct. 7, 1907); Heard's Pond, Wayland (*K. M. Wiegand*, July 17, 1908); wet field, south side of Blue Hill (*Wm. Boott*, July 7, 1853); rich woods on bank of Sudbury River (*A. J. Eames*, July 27, 1909).

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SALIX CALCICOLA, A LITTLE KNOWN NORTHERN WILLOW.

M. L. FERNALD AND K. M. WIEGAND.

Salix calcicola, n. sp. *S. Richardsoni*, var. *Macouniana* Bebb, Bot. Gaz. xiv. 50, t. 9 (1889). *S. lanata*, var. *Macouniana* Bebb, according to Macoun, Ann. Rep. Geol. Surv. Can., n. s. iii. 70 J (1889), *nomen nudum*.

Since this remarkable shrub was described by Mr. Bebb from one of the Twin Islands in James Bay,¹ it has been found on calcareous cliffs of Table-top Mountain, Gaspé County, Quebec, by *Fernald & Collins* (no. 211, August 7, 1906), on the shores of Kangalaksiorvik Bay, Labrador by *Owen Bryant* (no. 75, September, 1908) at Burwell, Hudson Strait and Churchill, Hudson Bay, lat. 58° 50' by *J. M. Macoun* (nos. 79,155 and 79,154, July 18 and August 3, 1910), and on limestone barrens at sea-level by Ingornachoix Bay and on Pointe Riche, Newfoundland, by *Fernald & Wiegand* (nos. 3151 and 3152, August 1 and 4, 1910). All this material is essentially uniform in character, agreeing with the original plate of *Salix Richardsoni*, var. *Macouniana* in its short-ovate to orbicular apiculate round-based or subcordate leaves, its dense aments and undivided stigmas. In these characters the eastern shrub is strongly contrasted with Hooker's *S. Richardsoni*, which has the narrowly obovate gradually acute leaves tapering at base, and the stigmas distinctly cleft. Besides these characters, already noted by Bebb, we find that in *S. calcicola* the midrib of the leaf is much wider and more conspicuous and the shorter petiole much broader than in *S. Richardsoni*. In the latter species, the stipules, as shown in Hooker's plate (Fl. Bor. Am. t. clxxxii) and in two authentic specimens in the Gray Herbarium, are lanceolate and bear three conspicuous gland-tipped teeth on each side. In *S. calcicola* the stipules are oblong-ovate to suborbicular, with numerous very fine glandular teeth. In all these characters the eastern shrub is so constant and distinctive that we feel no hesitation in raising it to specific rank; but since the name *Salix Macounii* has already been used in the genus it is advisable, in order to avoid possible confusion, to give the plant a new name.

Salix calcicola is quickly distinguished from all the other species known to us from eastern America by its large terminal (as well as rarely scattered) catkins and by the very large terminal hairy winter-buds which, when fully grown are 5-10 mm. in diameter. The fully mature leaves become quite glabrate and thick, varying from 2 to 5 cm. in length.

Salix lanata L. of Arctic Europe has been reported from "eastern

¹ In his account of the expedition to James Bay, Mr. James M. Macoun (Bot. Gaz. xiii. 117) says that "on the north Twin Island specimens of a new willow were collected which has been described by Mr. Bebb"; but, in the original publication of the plant, Bebb said "South Twin, James Bay, Collected July 17, 1887, by Mr. James M. Macoun, for whom it is named."

British America north of the Arctic circle and Greenland (Hook. Arc. Pl.)”¹ but Bebb remarks: “I have not seen specimens.”¹ It is not improbable that Hooker’s British American plant was *S. calcicola*, from which *S. lanata* is distinguished by its more elongate and pubescent leaves, its longer aments with more colored hairs, and by the 2-cleft stigmas.

STUMP-HEALING IN *PINUS STROBUS*.—A few years ago I noticed a white pine stump which was healing over! This was contrary to all experience. For such growth is uncommon or rare on low stumps even among our dicotyledons which ‘sucker up’ freely. And *Pinus Strobus* never grows again from the stump,—*P. rigida* being our only conifer that behaves in this manner. The tree had been cut about four years apparently, and during this time the wound-tissue had spread inward irregularly over the cut surface, in places nearly an inch. How could a leafless plant do this? But one answer was possible,—that nourishment was being derived from some other tree, and root-grafting was suspected as the means, though such could not be proved at the time. Later a similar growth was noted on a small hemlock stump in the Arnold Arboretum. This summer another case has come to my attention, and has supplied evidence showing that root-grafting is indeed the cause of these unusual growths. One pine among a group was cut, and the stump healed slowly for two or three years before dying. These trees stand on a gravelly knoll and their roots are nearly all exposed for some distance from the trunks. Grafting frequently occurred where crossings were formed, especially along a path where the roots had been wounded. It is probable that a parasitism of this sort is not uncommon among our trees, but the sight of an apparently lifeless pine-stump magically healing itself is almost startling.—ARTHUR J. EAMES, Cambridge, Massachusetts.

BOTANICAL LECTURES AT THE LOWELL INSTITUTE.—The Lowell Institute announces among its courses of free public lectures a series on Local Natural History to be given under the auspices of the Boston Society of Natural History. The series upon “The Wild Plants of Eastern Massachusetts” is to be given by Professor M. L. Fernald on

¹ Bebb, Bot. Gaz. xiv. 49 (1889).